

**REMARKS**

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This paper is intended as a full and complete response to the Office Action dated March 21, 2007, having a shortened statutory period for response set to expire on June 21, 2007.

Claims 1, 3-4, 25, 50, and 52-60 are currently amended in the Application.

Claims 66-72 are included to recite more clearly aspects of the subject matter.

Claims 1, 3-6, 8-14, 16-34, 50-62, and 64-72 are pending in the Application.

**Claim Rejections -- 35 USC 102**

The Office Action rejected Claims 1, 6, 50 and 51 under 35 USC 102(b) as being unpatentable over *Harrison* U.S. Patent Number 4,909,670. The Office Action states, "*Harrison* discloses a subsea pipeline (10) comprising a first pipeline (See *Harrison*, member 10 @ left side of Figure 4), intermediate buoyant pipeline section (See *Harrison*, member 10 @ 20 of Figure 4) and a second pipeline (See *Harrison*, member 10 @ right side of Figure 4)."

Applicant has amended base Claims 1 and 50, obviating the rejection. *Harrison* discloses a single float to create a temporary deflection in a pipeline to maintain axial tension above the seabed (See *Harrison* at col. 3, ll. 30-34). *Harrison* does not teach, show or suggest a pipeline comprising at least one distributed buoyancy region comprising two or more buoyancy solutions disposed thereon as required in every claim. Therefore, withdrawal of the rejection and allowance of the claims is respectfully requested.

The Office Action rejected Claims 1, 3, 5-6, 8-14, 16, 25-27, 33-34 and 50 under 35 U.S.C. § 102(a) as being anticipated by *Pollack* International Publication Number 2004/068014A1. The Office Action notes:

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*Pollack* discloses an apparatus (1) to traverse a seabed topographic feature comprising a subsea pipeline (1) constructed to carry fluids from a first location (this is considered as the left of Fig. 1) across the topographic feature to a second location (this is considered as the right of Fig. 1) wherein the topographic feature is selected from the group consisting of subsea basins, domes, valleys, cliffs, canyons, escarpments and combinations thereof, said pipeline including at least one buoyancy region (6, 25) said pipeline comprising a first unbuoyed pipeline section (2) extending from said first location on a sea floor (4) to said distributed buoyancy region and a second unbuoyed pipeline section (3) extending from said distributed buoyancy region to said second location on a sea floor and said distributed buoyancy region connecting said first and said second pipeline sections in fluid communication.

Applicant respectfully traverses the rejection. *Pollack* discloses a pipeline attached to a frame 25 (See *Pollack* at pg. 4, line 1). The frame 25 is supported using a "tower or frame construction 9, 10" (See *Pollack* at col. 3, line 16) or "buoyancy device[s] 36" (See *Pollack* at col. 4, line 16). The pipeline in *Pollack* is not supported by the buoyancy device 36. Only the frame 25 is supported by the buoyancy device 36. Therefore, *Pollack* at the very least does not teach, show or suggest a pipeline comprising a distributed buoyancy region comprising two or more buoyancy solutions disposed thereon as required in every claim. Withdrawal of the rejection and allowance of the claims is respectfully requested.

### **Claim Rejections -- 35 USC 103**

The Office Action rejected Claim 4 under 35 U.S.C. § 103(a) as being unpatentable over *Pollack* in view of *Moses* U.S. Patent Number 5,615,977. The Office Action concludes *Pollack* discloses the invention "substantially as claimed" while *Moses* discloses the use of a continuous buoyant coating.

Applicant has amended base Claim 1 from which Claim 4 depends, obviating the rejection. Furthermore, *Moses* does not teach or suggest the use of a continuous buoyant coating,

rather *Moses* discloses only the use of “buoyancy elements” (See *Moses* at col. 6, line 62) that are a short section of coating on the pipeline. *Moses* makes clear that the coating as shown in Figure 6 is incidental to the attachment of the “buoyancy element 62 that is rigidly attached to, or made integral with, a very rigid pipe section” (See *Moses* at col. 6, ll. 64-66). Therefore, a combination of *Pollack* and *Moses* does not teach, show, or suggest a buoyancy solution comprising a continuous coating of buoyant material as required by Claim 4. Withdrawal of the rejection and allowance of Claim 4 is respectfully requested.

The Office Action rejected Claim 3 under 35 U.S.C. § 103(a) as being unpatentable over *Harrison* in view of *Luppi* U.S. Publication Number 2005/0158126. The Office Action concludes *Harrison* discloses the invention “substantially as claimed” while *Luppi* discloses the use of “a plurality of buoyancy means.”

Applicant has amended Claim 3 and base Claim 1 from which Claim 3 depends, obviating the rejection. A combination of *Harrison* and *Luppi* does not teach, show or suggest two or more buoyancy solutions comprising discrete buoyancy-providing modules disposed along a length of said pipeline as required in Claim 3. Withdrawal of the rejection and allowance of Claim 3 is respectfully requested.

The Office Action rejected Claims 8, 28, and 58 under 35 U.S.C. § 103(a) as being unpatentable over *Harrison* in view of *Moses*. The Examiner concludes that in order to reduce pipeline stress, the use of flexure devices disclosed by *Moses* at the weighted joints disclosed by *Harrison* is obvious. The Examiner states that *Harrison* teaches the use of weighted joints or anchors at each end of the buoyant section of pipeline, thereby disclosing the invention “substantially as claimed” while *Moses* discloses the use of “flexure devices” at each end of the buoyant section.

Applicant respectfully traverses the rejection on grounds that a combination of the references does not teach, show or suggest flexure control devices at two fixed ends of a buoyant

section of subsea pipeline to reduce bending stress and strain in a first pipeline section as required by Claims 8, 28, and 58. *Moses* discloses flexible couplings to permit limited movement of a pipeline connecting seabed and surface structures in response to currents, tides or wave action. *Harrison* discloses “weighted masses” on the pipeline at locations on “either side of the [seabed] undulation to be crossed” in order to “minimize the vertical deflection required to achieve the desired amount of slack” in conjunction with routing a seabed pipeline (See *Harrison* at col. 3, ll. 60-61, 65 continuing to col. 4 ll.1-2). The weights in *Harrison* are interim measures to facilitate the permanent routing of a pipeline on the seabed. A fixed, seabed, pipeline installed as taught by *Harrison* would not be subjected to tidal or wave action and therefore would not require the use of the flexible couplings as taught by *Moses*. The purpose of *Harrison* is inapposite with the purpose of *Moses*. As such, the Examiner’s combination of *Harrison* and *Moses* is improper and does not arrive at the Applicant’s claimed invention. Withdrawal of the rejection and allowance of Claims 8, 28 and 58 is respectfully requested.

The Office Action rejected Claims 9, 17-24, 29-32, 52-57, 60, 61, 62, 64, and 65 under 35 U.S.C. § 103(a) as being unpatentable over *Harrison* in view of *Moses*. Applicant respectfully traverses the rejection. Since Claims 9, 17-24, 29-32, 52-57, 60, 61, 62, 64, and 65 are dependent from base Claims 8, 28 and 58, and include all of the limitations contained therein, the claims are patentable for at least the same reasons as their respective base claims. Withdrawal of the rejection and allowance of the claim is respectfully requested.

The Office Action rejected Claim 59 under 35 U.S.C. § 103(a) as being unpatentable over *Harrison* once modified by *Moses*, and in view of *Luppi*. The Examiner states, “It would have been considered obvious to one of ordinary skill in the art to further modify the (once modified) *Harrison* to include a plurality of buoyancy members as taught by *Luppi*.”

Applicant respectfully traverses the rejection on grounds that a combination of the references does not teach, show or suggest two or more discrete buoyancy-providing modules disposed along a length of said pipeline as required by Claim 59. Contrary to the Examiner’s

assertion, the modification of *Harrison*, through the addition of the flexible couplings disclosed in *Moses*, remains a pipeline supported by a single temporary buoy with flexible couplings. *Luppi* adds nothing to the deficiencies of *Harrison* and *Moses*. *Luppi* discloses a single buoyant element with multiple chambers therein to vary the buoyancy by adding or purging water/air within the individual chambers. As such, a combination of *Harrison*, modified by *Moses*, with *Luppi*, inevitably results in a pipeline supported by a single buoyant element. Therefore, a combination of *Pollack*, *Moses*, and *Luppi* does not teach, show or suggest two or more discrete buoyancy-providing modules disposed along a length of said pipeline as required by Claim 59. Furthermore, since Claim 59 is dependent upon base Claim 8 and includes all of the limitations recited therein, Claim 59 is patentable for at least the same reasons as base Claim 8. Withdrawal of the rejection and allowance of the claim is respectfully requested.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the Office Action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this Office Action.

Having addressed all issues set out in the office action, Applicant respectfully submits that the pending claims are now in condition for allowance. Applicant invites the Examiner to telephone the undersigned attorney if there are any issues outstanding which have not been addressed to the Examiner's satisfaction

The Commissioner is hereby authorized to charge Deposit Account No. 11-0400 in the name of Kellogg Brown & Root LLC, for any fees incurred by this filing or any fees required to make this response timely and acceptable to the Office.

Applicant thanks the Examiner for his time on the matter.

Respectfully submitted,

Date: \_\_\_\_\_

5/7/07



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